(Please write your Exam Roll No.) *Exam Roll No. .....*

END TERM EXAMINATION

SECOND SEMESTER [BCA] MAY 2019

Paper Code: BCA-110 ***Subject: Database Management System***

Time: 3 Hours ***Maximum Marks: 75***

Note: Attempt any five questions including Q.no.1 which is compulsory. Select one question from each unit.

Q1 Answer the following **(any five)**:- **(5x5=25)**

(a) Explain advantage of database management system over file processing system.

(b) Explain sub class, super class, Specialization and Generalization with example and appropriate diagram.

(c) Explain DDL, DML. Give three sql commands each for DDL and DML.

(d) What do you mean by relationship cardinality? Explain its type with suitable example

(e) What do you mean by data constrain? Define Domain Constraint, Entity integrity constraint, Referential integrity constraint.

(f) Explain ACID properties of Transacuon in DBMS.

(g) Draw an ER diagram for library management system. Make assumptions as required.

UNIT-I

Q2 (a) Explain different types of attributes with example-composite, derived, multi-valued. **(6)**

(b) Discuss three tier architecture of database management system with diagram. https://www.ggsipuonline.com **(6.5)**

Q3 (a) Explain different types of keys with example. Differentiate between super key, candidate key, primary key and foreign key. **(6)**

(b) Explain physical and logical data independence with diagram. **(6.5)**

UNIT-II

Q4 (a) Consider the following relations **(10)**

Customer (CustId, CusName, Address, State)
Parts (Partnum, Description, Price)
Order (OrderNo, Name, Partnum, Qty, CustId)
Write Relational Algebra query for each of the following

- Find all customers who have placed order for part description "Tyres".
- Find customer name, address of customers who have purchased partnum 10 and quantity ordered is more than 100.
- Find customer name, address of those customer residing in State="Delhi".
- Find all order no, name, partnum of all orders placed by customer id=101.
- Find all customer name who have placed order for product with price more than 500.

(b) Explain views in DBMS with example. **(2.5)**

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Q5 (a) Construct ER diagram for Company Management System. Assuming Company Works on different projects, for each project working hours is maintained for each employee and company has many departments located at different places. Explain each relationship in terms of cardinality, participation and describe each entity with its attributes. **(10)**

(b) Explain indexes in DBMS and its advantage. **(2.5)**

UNIT-III

Q6 Consider the following relations **(12.5)**

Stu(SID integer PK, Sname varchar, course varchar, sem integer)

Stu_Project(SID integer FK, PID integer, progress integer, PK(SID,PID))

where PK-Primary Key, FK-Foreign Key

Write SQL query for each of the following.

- Create both table with constraints
- Add new column ProjectName varchar2(20) in Stu_Project.
- Find all student name who have made progress more than 40% in their project.
- Delete record form Stu_project where progress in less than 10%.
- Increase the progress by 10% for each student of BCA course.
- Create view SV having Sname, course, PID, progress.

Q7 (a) Explain functional dependency by taking the example of Stu_Project mentioned in Q6. **(6)**

(b) Explain 1st, 2nd and 3rd Normal form with example. **(6.5)**

UNIT-IV

Q8 (a) Define concurrency. Explain the problem of lost update, dirty read and incorrect summary with example. **(6)**

(b) Explain Discretionary Access Control [Grant/Revoke] method for database security. **(6.5)**

Q9 (a) Explain 2 Phase Locking Scheme for data recovery. How two phase locking helps in maintaining integrity of the database? **(6)**

(b) Explain Different types of security issues and threats to database system. **(6.5)**

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